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**THE TEMPLETON CROCKER EXPEDITION OF THE
CALIFORNIA ACADEMY OF SCIENCES, 1932**

No. 2

INTRODUCTORY STATEMENT

THE EXPEDITION ON THE YACHT *ZACA* TO THE GALAPAGOS
ARCHIPELAGO AND OTHER ISLANDS AND TO THE
COAST OF CENTRAL AMERICA AND MEXICO
MARCH 10 TO SEPTEMBER 1, 1932

BY
TEMPLETON CROCKER

Having the desire to further the scientific work along lines of natural history which has been quietly pursued by the California Academy of Sciences, the facilities which were at my command in 1932 for voyaging in the Pacific Ocean were offered to the late Dr. Barton Warren Evermann, then the Executive Curator of the Academy and Director of its scientific activities. This offer having been accepted, steps were at once taken to outfit my yacht *Zaca* for an extended scientific cruise. Not least among these preparations was the installation of tanks and a system of water circulation for the care of live fishes, as it was proposed to bring back as many as possible for the Academy's Steinhart Aquarium.

The *Zaca* is a motor equipped schooner with average cruising speed of about seven knots. Her length over all is 118 feet. The officer in charge of navigation was Captain Garland Rotch; the Medical Officer was Dr. Albert E. Larsen. The crew consisted of thirteen men, namely: First and Second Mates, Radio Operator, Chief and Second Engineer, Cook and assistant, Steward and assistant, and four seamen.

To the scientists who had been detailed for service on the expedition there was added a Japanese artist, Toshio Asaeda, who proved exceptionally expert in reproducing in water colors the marvelous specimens of marine life which were encountered on the expedition. Within the five months and three weeks that we were afloat, he painted some 300 individual specimens of fishes, crabs and other marine life, besides some birds, reptiles and insects, with remarkable fidelity to shape and color. Asaeda was also the photographer of the expedition and at its termination had some 1,400 photographs to his credit.

Cruising was uneventful. There were but ten hours of bad weather. Landings were made where desired without exceptional difficulties and explorations into the interior were arranged wherever there was promise of something unusual. We had quickly learned that it was not safe to let any one wander inland alone, so the rule was strictly enforced that any one off on an exploration must be accompanied by some one else. The members of the crew were always ready and soon became valuable aids as collectors.

Briefly stated this cruise of more than five months took us from San Francisco to the west coast of Mexico and Central America, to Cocos Island, the Tres Marias Islands, the Revillagigedo Islands, Cedros Island, Guadalupe Island and San Nicolas Island. Two months were spent at the Galapagos Archipelago. At all these places collections of fauna and flora were made and deep-sea dredging was resorted to for specimens from the ocean floor. The 168 stations occupied for dredging operations yielded much valuable material. At some of these stations we were pioneer explorers. The collections were successful to a maximum depth of 210 fathoms.

There were brought back 331 live fishes on the *Zaca* for exhibition in the Steinhart Aquarium. The extent of the collections of natural history specimens is indicated by the following preliminary statements furnished by the curators of the various departments of the California Academy of Sciences:

Botany: About 3,000 specimens of plants (not including duplicates) were obtained. Some species of flowering plants from the Galapagos had not been collected since the visit of Charles Darwin in the *Beagle*. Over 100 specimens of cacti were obtained, 40 of which are from the Galapagos; these latter are expected to serve as a basis of a critical study of the species found there. Over 200 specimens of marine algae were obtained at the Galapagos, and additional large collections were obtained from Lower California and other places where dredging was done. A large number of Hepaticae with smaller numbers of mosses and fungi were obtained in the tropical rain forests of the Galapagos Islands and Cocos Island.

Entomology: Although no trained entomologist accompanied the expedition, over 2,400 insects were taken by Mr. Maurice Willows

to whom I assigned this duty. The collections of Hemiptera and Diptera from the Galapagos are of special interest because these groups were largely neglected by the Academy's expedition of 1905-1906.

Ichthyology: A large collection of fishes was obtained by all the usual means employed in such work except explosives. Special attention was paid to tide pools and the use of a submarine light. Some excellent species were obtained in deep water with the dredges and trawls.

Herpetology: Since most of the localities visited had been previously explored by herpetologists, less attention was given to this branch of study. However, a snake was obtained on Duncan Island of the Galapagos, the second ever taken there. Forty sea snakes were taken along the Central American coast.

Paleontology: Investigations and collections for this department were made at numerous places and by most of the members of the expedition. Records of some of the raised beaches of the Galapagos show that extensive earth movements have taken place there within comparatively recent time. Fossils were collected at several points in the Galapagos Islands at localities additional to those which were made known by the Academy Expedition of 1905-1906. The large amount of dredging which was done resulted in the bringing together of a huge collection of marine shells. Excellent specimens of *Xenophora* were obtained along the Central American coast; the genus has apparently hitherto been obtained but once from western North America. Five specimens of a striking jet black *Mitra* (not *belcheri*) fully five inches long were dredged off the coast of Lower California. Brachiopoda, Echinoidea, Asteroidea, sponges, corals and many Crustacea were collected in large numbers and at many places.

Ornithology: A collection of about 400 specimens of birds was brought back by the expedition. By far the greatest number were taken on the Galapagos Islands where special effort was made to select certain species or particular plumages to fill out the Academy's series. One species of finch not known since the time of Charles Darwin and supposed to be extinct was found to have survived on some of the islands. The birds of these islands are of exceptional interest, not only because of their many remarkable peculiarities, but because the study of them was largely responsible for the formulation of Darwin's theory of evolution. By the use of the freezing equipment installed aboard the ship, it was possible to bring back numerous birds in the flesh.

Aquarium: The tanks on the deck of the *Zaca* were equipped for constant circulation of sea water. By heating this water from the exhaust of the motors it was possible to bring the tropical forms alive

from as far south as the Galapagos to San Francisco. Many of the gaudily colored fishes from warm waters seem to lose some of their brilliance when placed in the aquarium, although otherwise they appear normal in every way. The transportation of the living fishes called for constant vigilance. The water circulation apparently imposed no hardship on the fishes themselves, but its maintenance without interruption devolved on Mr. Lanier who was constantly giving these fishes his expert attention. No one else could have succeeded as he did. The live fish carried on the *Zaca* consumed 640 pounds of food during the cruise.

As one of the achievements of the expedition it is to be noted that an exploration of the fog belt or wet zone of the mountain on Indefatigable Island of the Galapagos group was undertaken, and its summit reached on May 9, 1932. Our party was the first to have ever made this ascent.

It gives me particular pleasure to record the fact that the courtesies extended to the members of the expedition wherever a stay was made, were numerous and wholehearted. The coöperation and good will of the governments of the several countries visited and of their representatives were always manifest and are gratefully acknowledged.

I wish to acknowledge also the resourcefulness of Captain Rotch and his splendid coöperation on all matters; the willingness and unselfishness of the crew, and above all the tolerance which every member of the cruise showed toward my authority.

An itinerary of the expedition together with a list of those who participated is attached hereto.

APPENDIX A

Members of the Expedition:

Mr. Templeton Crocker.
Mr. Maurice Willows, Secretary to Mr. Crocker
and collector of insects.
Captain Garland Rotch.
Mr. John Ozanne, First Mate.
Mr. Garth Basford, Chief Engineer.
Mr. Karl Elm, Second Mate.
Mr. Arnold Wehlin, Second Engineer.
Dr. Albert E. Larsen, Medical Officer.
Rene Gasse, Radio Operator.
H. Petersen, A/B.
B. Bendiksen, A/B.
Jack Ratican, A/B.
Frank Taiga, A/B.
Henry Miller, First Cook.
Merle L. McPherren, Second Cook.
Pemassa Utu, Messboy.
Basil Kalhimanis, Messboy.

Scientific Staff:

Mr. Harry S. Swarth, in charge, Curator of the
Department of Mammalogy and Ornithology.
(Left expedition from Punta Arenas on June
27 for San Francisco.)
Mr. H. Walton Clark, Assistant Curator of the
Department of Ichthyology.
Mr. John Thomas Howell, Assistant Curator of
the Department of Botany.
Mr. Robert J. Lanier, Assistant Superintendent
of the Steinhart Aquarium.
Mr. Toshio Asaeda, Artist and Photographer.

APPENDIX B

ITINERARY OF THE TEMPLETON CROCKER EXPEDITION OF THE
CALIFORNIA ACADEMY OF SCIENCES, 1932

By CAPTAIN GARLAND ROTCH

<i>Place</i>	<i>Arrival</i>	<i>Departure</i>
San Francisco.....		March 10
San Nicolas Island.....	March 12	March 13
San Diego.....	March 14	March 14
Ensenada.....	March 15	March 15
Guadalupe Island.....	March 16	March 18
Clarion Island.....	March 22	March 24
Socorro Island.....	March 26	March 29
Acapulco.....	April 2	April 7
Galapagos Islands		
Chatham (Wreck Bay).....	April 15	April 15
Off Abingdon.....	April 16	April 16
Bindloe.....	April 16	April 16
Chatham (Wreck Bay).....	April 17	April 19
Hood (Gardner Bay).....	April 19	April 22
Charles (Post Office Bay).....		
(Black Beach Road).....		
(Cormorant Bay).....	April 23	April 27
Albemarle (Villamil).....		
(Santo Tomas).....	April 27	April 30
Brattle.....	April 30	April 30
Off Crossman.....	April 30	April 30
Indefatigable (Academy Bay).....	May 1	May 14
Charles (Black Beach Road).....		
(Post Office Bay).....	May 14	May 20
Albemarle (Iguana Cove).....		
(West Coast).....		
(Vicinity Elizabeth Bay).....		
(Tagus Cove).....	May 21	May 28
Narborough (Northeast Coast).....	May 28	May 29
Albemarle (Vicinity Cape Marshall).....	May 29	May 31
Narborough (Northeast Coast).....	May 31	June 2
James (James Bay).....	June 3	June 6
Jervis.....	June 6	June 7
Duncan.....	June 7	June 8
Indefatigable (Conway Bay).....		
(North Coast).....	June 8	June 9
Seymour (South).....	June 9	June 11
(North).....	June 11	June 12
James (Sullivan Bay).....	June 12	June 14
Tower (Darwin Bay).....	June 15	June 16
Punta Arenas.....	June 22	June 26
Cocos Island (Chatham Bay).....		
(Wafer Bay).....	June 28	June 28
Punta Arenas.....	June 30	June 30
Braxilito Bay.....	July 1	July 2
Murcielago Bay.....	July 2	July 3
Port Parker.....	July 3	July 4

<i>Place</i>	<i>Arrival</i>	<i>Departure</i>
Corinto.....	July 5	July 5
Gulf of Fonseca.....	July 6	July 9
La Union.....	July 9	July 9
Manzanillo.....	July 18	July 18
Navidad Bay.....	July 18	July 19
Banderas Bay (Puerto Vallarta).....		
(Punta Mita).....	July 20	July 22
Maria Madre Island.....	July 23	July 25
San Juanito Island.....	July 25	July 25
Maria Madre Island.....	July 25	July 27
Isabel Island.....	July 27	July 28
Mazatlan.....	July 30	Aug. 2
Cape San Lucas.....	Aug. 5	Aug. 7
Magdalena Bay.....	Aug. 8	Aug. 11
Santa Maria Bay.....	Aug. 11	Aug. 12
San Bartolomé.....	Aug. 14	Aug. 15
Cedros Island (Southeast Coast).....	Aug. 15	Aug. 17
Natividad Island.....	Aug. 17	Aug. 17
Cedros Island (South Bay).....	Aug. 17	Aug. 18
San Benito Islands.....	Aug. 18	Aug. 18
San Martin Island.....	Aug. 19	Aug. 21
Ensenada.....	Aug. 22	Aug. 22
San Diego.....	Aug. 23	Aug. 23
Cortes Bank.....	Aug. 24	Aug. 25
San Nicolas Island.....	Aug. 26	Aug. 28
San Francisco.....	Sept. 1	